WOODBRIDGE POND CONCEPTUAL REMEDIATION PLAN

HATCO CORPORATION
FORDS, NEW JERSEY
Program Interest Number G000003943

November 12, 2015

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Prepared by:

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INTRODUCTION

The purpose of this Woodbridge Pond Conceptual Remediation Plan is to present Weston Solutions Inc.'s (Weston) planned remediation approach to address off-site contamination from the Hatco facility within the adjacent Woodbridge Pond for initial key stakeholder review and comment. Upon acceptance of this approach by the key stakeholders, Remedial Action Work Plan (RAWP) Addendum No. 4 will be prepared to satisfy the requirements of N.J.A.C. 7:26E 5.5 and the United States Environmental Protection Agency (USEPA) Toxic Substances Control Act (TSCA). The RAWP Addendum will be distributed to stakeholders for review and approval. The RAWP Addendum requires the following approvals:

- Property owner, Township of Woodbridge;
- New Jersey Department of Environmental Protection (NJDEP) for the proposed remediation standard;
- Licensed Site Remediation Professional (LSRP) for compliance with current Administrative Requirements for the Remediation of Contaminated Sites (ARRCS) rules; and
- USEPA in accordance with the project-specific Remediation Agreement.

SITE DESCRIPTION AND BACKGROUND

The location of the Hatco site and adjacent Woodbridge Pond is shown on the attached Figure 1. Woodbridge Pond is approximately 2.5 acres in extent and located west of the Hatco site on an adjacent property owned by the Township of Woodbridge in Fords, Middlesex County, New Jersey. The precise origin of Woodbridge Pond is uncertain, but review of historical U.S. Geological Survey (USGS) topographic maps and aerial photography indicates that the pond is at least 50 years old. Surrounding land uses consist of industrial development (including the active Chemtura facility, Crown Pacific, and other industry), interspersed with remaining undeveloped wetland habitat, and restored wetlands on the Hatco site much of which is dominated by common reed (*Phragmites australis*), and some remnant forested wetlands. Woodbridge Pond receives stormwater runoff from upgradient areas. Outflow from Woodbridge Pond is at its southeast end, where it flows easterly and then southward under Riverside Drive into the Raritan River, about one mile downstream.

The Consolidated Remedial Action Work Plan (RAWP) for the Hatco site dated August 18, 2005 was previously submitted to the NJDEP and the USEPA. Later addenda (August 2006 Addendum, September 2006 Revised Addendum, and August 2009 Addendum No. 3), were issued and approved by NJDEP and USEPA to address changes in the remedial approach and/or additional areas of concern. State regulatory oversight is now provided by a LSRP under the Site Remediation Reform Act (SRRA). The approved RAWPs do not cover remediation of Woodbridge Pond; therefore, an approved RAWP Addendum is required prior to remedial action.

During previous field investigations, the sediments of Woodbridge Pond have been found to be contaminated with polychlorinated biphenyls (PCBs) and bis (2-ethylhexyl) phthalate (BEHP) which were historically used at the Hatco facility. The transport mechanism for the contamination found in the pond sediment was identified as overland runoff related to former

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contamination within the adjacent Channels A, B, and C, which were associated in part with the "muck area" and open waste ponds/lagoons formerly used by Hatco-Grace for disposition of product wastes. Weston has completed remediation of the former pond/lagoon areas, including remediation of Channels A, B and C and there are no remaining sources of runoff carrying contaminated soil particles from the Hatco site into Woodbridge Pond. Groundwater is not considered a source for PCB and BEHP-impacted sediment within the pond. This conclusion is supported by historical groundwater sample analytical results from locations up-gradient of Woodbridge Pond.

SUMMARY OF PRIOR INVESTIGATION DATA

The distribution of PCB and BEHP-contaminated sediments within Woodbridge Pond is shown in Figure 2. More than 80 sediment cores were advanced during investigations of Woodbridge Pond between June 2007 and March 2014. Analytical results from these sediment cores indicated PCB contamination above the site-specific risk-based remediation goal of 1 milligram per kilogram (mg/kg) was found in sediments in the eastern and central portions of the pond, to depths up to 3.5 feet below the sediment surface. BEHP is also present in sediments in the pond at concentrations exceeding the NJDEP Ecological Screening Criteria for Fresh Water Sediment Severe Effects Level (FWSSEL) reference value of 0.75 mg/kg. Sediments with the highest concentrations of PCBs and BEHP are generally collocated.

REMEDIATION GOALS

The USEPA risk-based PCB disposal approval letter dated March 30, 2005 (Attachment 1), establishes remediation goals of 1 mg/kg for offsite sediment in Crows Mill Creek (referred to as Channel D in the RAWP) and 2 mg/kg for soil west of the site. The site-specific clean-up goal for PCB concentrations in pond sediment of 1 mg/kg was presented in the August 2009 RAWP Addendum No. #3 and approved by both the USEPA and NJDEP in 2010. Through technical consultation with NJDEP, Weston with concurrence from Mark Fisher, LSRP, recommended a site-specific remediation standard of 22 mg/kg for BEHP in Woodbridge Pond sediments. The technical basis for this recommendation was summarized in the memorandum dated May 7, 2015, from Mark Fisher, LSRP, to Kevin Schick at NJDEP (Attachment 2).

REMEDIATION APPROACH

Weston proposes to achieve the remediation goals through the following actions:

- Physical removal and relocation of sediment containing greater than 10 mg/kg PCBs from Woodbridge Pond to the approved soil reuse area, identified as the Former Lagoon Area, on the Hatco site. If volumes exceed the capacity of the reuse area, excess material will be shipped offsite for disposal at a designated licensed facility.
- Placement of a 6-inch thick sand cap over the areas within Woodbridge Pond that contain PCB concentrations greater than 1 mg/kg and less than or equal to 10 mg/kg and/or BEHP concentrations greater than 22 mg/kg.
- Establishment of a deed notice and remedial action permit as institutional controls for contamination that remains at concentrations in excess of unrestricted use levels established by NJDEP.
- The extent of sediment removal and capping will be based on existing data.

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Weston anticipates that removal of sediments can be accomplished effectively via focused wet dredging, or equivalent technology, and placed underneath the site engineered cap on the Hatco site. The combination of focused dredging and capping minimizes the volume of contaminated sediment and water to be managed and handled at this ecologically sensitive site. "Sediment remedies should be designed to meet long-term risk-reduction goals, as opposed to metrics not strictly related to risk, such as mass removal targets" (excerpt from "Sediment Dredging at Superfund Megasite – Assessing the Effectiveness", National Research Council, 2007). The combination of dredging and capping at Woodbridge Pond addresses both short and long term risk.

Focused dredging of greater than 10 mg/kg PCB sediments will result in a significant reduction in PCB and collocated BEHP contaminant mass and significantly reduce the impact to a sensitive area that would otherwise be altered significantly. Subsequent capping will help cover PCB and BEHP residuals that become exposed or temporarily re-suspended in the water column and deposited due of dredging activity.

Capping will provide a barrier to block access to contaminated sediment by ecological receptors and the direct contact pathway for benthic invertebrates, the food source for upper level organisms (vertebrates). Capping will also provide a measure of stabilization and erosion protection of the remaining contaminated sediments, preventing re-suspension of particulates containing trace concentrations of PCBs or BEHP due to bioturbation. A marker layer will be installed at the base of the cap to ensure the limits of the control are clearly identifiable in the field and to facilitate for future monitoring and maintenance of cap thicknesses. Installation of a six inch cap is conservative because sediment deposition will continue after cap installation and cap thickness will increase over time. As shown on Figure 2 higher concentrations of PCBs are found at depth which is consistent with the understanding that the areas of highest impact are depositional environments where sediment accretion is expected to continue on top of the cap. Because the horizontal and vertical extent of PCBs and BEHP have been delineated to the remediation goals, post dredging confirmatory sampling is not planned since cap installation will address risk posed by anomalous zones of slightly higher concentration.

The proposed capping approach is consistent with remediation approaches selected at other PCB sediment sites where capping of lower PCB concentration sediment and dredging of higher PCB sediment was implemented for remedial actions. A short list of PCB sites where sediment dredging and/or capping was used is provided below:

- Manistique Harbor, Michigan, where sediments with PCBs greater than 10 mg/kg were removed and less than 10 mg/kg were capped with sand;
- Bremerton Naval Complex Puget Sound, Washington, where sediments with PCBs greater than 12 mg/kg were removed and sediments with PCBs greater than 6 mg/kg were capped with sand;
- Fox River, Wisconsin, where sediments were capped at PCB concentrations greater than 10 mg/kg and dredged at greater than 50 mg/kg; and
- Grasse River, Massena, New York, where sediments were capped on the order of 10/mg/kg PCBs with a blend of topsoil and sand.

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Remedial Action – General Description

The remedial action proposed is a combination sediment removal and subaqueous capping. Sediment with PCB concentrations greater than 10 mg/kg and BEHP collocated within this sediment will be physically removed from the pond and relocated to the Former Lagoon Area at the Hatco site and placed under an engineered cap. If the final volume of removed sediments exceeds the capacity of the Former Lagoon Area, the excess material will be shipped offsite for proper disposal. Sediments containing PCB concentrations between 1 and 10 mg/kg and/or BEHP concentrations greater than 22 mg/kg will be capped with six-inches of clean sand. The proposed extent of this removal and capping is shown on Figure 2.

Compliance with the remediation goals will be demonstrated using existing data. As discussed in the LSRP memorandum dated May 7, 2015, compliance averaging will be used to demonstrate compliance with the site-specific BEHP in sediment remediation goal (this approach will also address the minor BEHP exceedance at location CP-67). USEPA has previously rejected compliance averaging for PCB remediation at this site. Therefore, point compliance will be used to demonstrate compliance with the risk-based PCB goal.

The removal of contaminated sediments via wet dredging is a protective remedy for this ecosystem, as it minimizes impacts to wetlands and the water body itself by limiting disturbances primarily to the areas being remediated and required staging areas. Sediment wet dredged from Woodbridge Pond would be relocated to the Hatco site, placed in the site's Former Lagoon Area, and placed under an engineered cap. Figure 3 shows a generalized cross section of Woodbridge Pond, the approximated dredge areas along the section, and depicts a six-inch sand cap. The sediments would likely be pumped hydraulically directly to the Hatco site Former Lagoon Area for dewatering and capping. Hydraulically dredged sediment would be pumped using overland piping for staging and dewatering into a geotextile dewatering bladder (GeoTube® or similar technology). Blending of dredged sediment with a stabilization agent to expedite the drying process may be used. The dewatering process would recover water for on-site treatment, subject to permit approval, and discharge back into the pond or offsite transport and disposal. Employing the use of bottom weighted turbidity curtains would reduce the transport of contaminant residuals beyond the focused dredge areas.

Once sediment removal has been completed to the limits set forth in the final work plan, a benthic sand cap will be installed to prevent biota contact with remaining contaminated sediments and facilitate the regrowth of wet plants and reestablish biota in Woodbridge Pond. A clean substrate of 6-inches of sand will be placed on the pond bottom within the sand cap limits shown on Figure 2. The benthic sand cap would be placed using hydraulic or mechanical methods.

The remedial activities envisaged for this work include but are not limited to the following:

- Installation of erosion and sedimentation controls;
- Site clearing, preparation, and establishment of work zones;
- Wet dredging and sediment dewatering;
- Sediment transport and placement at the Hatco Site;
- Subaqueous cap installation;

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- Site and wetland area restoration; and
- Implementation of engineering and institutional controls.

Engineering and Institutional Controls

The sand cap proposed constitutes an engineering control. A deed notice will be required that limits the site use to non-residential. This will not impact Woodbridge Township's intended plan for this property to remain as undeveloped open space. A Remedial Action Permit (RAP) for Soils will be obtained from the NJDEP. A limited restricted use Response Action Outcome (RAO) will be issued by the LSRP once the RAP for Soils is in place.

Remediation Permits

The following permits will be obtained prior to initiation of Woodbridge Pond remedial activities:

- Soil Erosion and Sedimentation Control Plan approval by the Freehold Soil Conservation District;
- NJDEP Wetlands GP4 – for disturbance of wetlands associated with access to the eastern shoreline of the pond in order to remove sediments with greater than 10 mg/kg PCBs;
- Scientific Collection Permit – required to humanely destroy any remaining fish in the pond; and,
- NJPDES BGR (general permit for remediation) for discharge of the pond water to adjacent surface water within Channel B; it is currently envisaged that discharge water would be run through sediment and carbon filters first.

As noted above, A RAP for Soils will be obtained from NJDEP after engineering controls are established and the Deed Notice is recorded. The RAP for Soils will be required for operation and maintenance of administrative and engineering controls at the site

SITE RESTORATION

Disturbance to the ecosystem will be minimized to the extent possible throughout the course of field activities. Disturbances resulting from the Woodbridge Pond remediation effort (including disturbances caused by the sediment management area, laydown areas, access points to Woodbridge Pond, and temporary access roads to the site) will be restored following completion of remedial activities. The restoration goal following the completion of remediation will be to stabilize the pond ecosystem and to reestablish a wetland/transition community native to the area.

A Site Restoration Plan will be included in the design drawings and specifications and will be subject to regulatory and stakeholder approval, including Woodbridge Township (Owner). Following the completion of site restoration activities, wetland monitoring will be conducted for five years per NJDEP requirements to assess the progress of restoration and the establishment of a desired vegetation community in designated wetland area.

ATTACHMENTS

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 2
290 BROADWAY
NEW YORK, NY 10007-1866

MAR 30 2005

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Peter A. Ceribelli
Senior Vice President
Weston Solutions, Inc.
1400 Weston Way, Box 2693
West Chester, Pa. 19380

Dear Mr. Ceribelli:

This letter is the United States Environmental Protection Agency's (EPA) response to, and approval of, Weston Solutions, Inc. (hereinafter, "Weston") January 26, 2004 request, and the August 13, 2004 request modification, for a risk-based PCB disposal approval for portions of the Hatco site located in Fords, Middlesex County, New Jersey, in accordance with the federal regulations for polychlorinated biphenyls (PCBs) promulgated pursuant to the Toxic Substances Control Act (TSCA), 15 U.S.C. § 2601 et seq., and set forth in Part 761 of Title 40 of the Code of Federal Regulations (40 C.F.R. § 761). Prior to Weston's application, a PCB risk-based disposal application for the Hatco site was submitted jointly by Hatco Corporation and W.R. Grace & Co. by letter dated June 19, 2002.

The complete application that EPA considered, and that is the subject of this approval includes the following by this reference:

1) June 19, 2002 letter from Hatco and W.R. Grace & Co. transmitting a document titled "PCB Remediation Proposal And Human Health Risk Assessment For PCB Impacted Soils," dated August 31, 2001. A set of documents transmitted separately to EPA and listed in an Attachment to the June 19, 2002 letter. The listing includes a "Human Health Risk Assessment" (HHRA), a "Draft Remedial Action Work Plan" (RAWP) Volumes 1-5, and "Laboratory Reports," Volumes 6-21.

2) Weston's January 26, 2004 letter containing a modified application, which incorporates the prior application materials, and superseded the June 19, 2002 application submitted jointly by Hatco and W.R. Grace & Co.

3) Weston's August 13, 2004 letter setting forth a modified approach for remediation of the on-site lagoons, superceding the remedial approach set forth for the lagoons in the prior application materials.

It should be noted that the New Jersey Department of Environmental Protection ("NJDEP") reviewed the document, dated August 31, 2001, titled "PCB Remediation Proposal and Human Health Risk Assessment For PCB Impacted Soils," and in comments dated June 2, 2003, stated that the soil remediation proposal and risk assessment were unacceptable. NJDEP therefore required that a revised draft RAWP that addressed NJDEP's comments be prepared. Since that time, as indicated in Weston's January 26, 2004 modified risk-based PCB disposal approval application, as further modified in Weston's August 13, 2004 letter, the remedy has been significantly enhanced to address PCB contamination at the site. The modifications include:

1) extending the area to be covered with the engineered cap to all locations of the site with PCB concentrations greater than 2 mg/Kg (ppm) dry weight;

2) allowing only soils contaminated with PCBs at concentrations less than 500 mg/Kg (ppm) dry weight to remain on-site, with the exception of the two on-site lagoons addressed in item 3 below, and these materials shall be covered with the engineered cap as described in item 1 above; excavated materials containing greater than 500 mg/Kg (ppm) dry weight PCBs that are removed from the site shall be properly disposed of in accordance with federal PCB regulations contained in 40 C.F.R. § 761;

3) excavation and off-site disposal of chemical waste sludges, sediments, and any other material overlying the clay layer in the two on-site lagoons; sampling to verify that no material remaining in the lagoons exceeds a concentration of 500 mg/Kg (ppm) dry weight PCBs; verify the integrity of the clay layer and, if necessitated by any observed loss of integrity, restore the integrity of the clay layer; collapse of the berm separating the lagoons; backfill of the lagoons with soil from other areas of the Hatco site determined to contain less than 500 mg/Kg (ppm) PCBs (including areas identified in the draft RAWP that lie beyond the Hatco Corporation property boundary); capping those backfilled materials excavated from other areas of the Hatco site determined to contain greater than 50 mg/kg (ppm) PCB mg/kg with a geotextile of not less than 50 mil thickness and a permeability of not less than 10E-7 cm/sec; and cover of the lagoon backfill with clean fill to a thickness of not less than two feet. Materials excavated from the lagoons shall be managed, including separation of liquid and non liquid fractions, and disposed of off-site in accordance with PCB disposal regulations contained in 40 C.F.R §761.61(b); and

4) identification and placement of all locations at the site with PCBs in excess of 0.49 mg/Kg (ppm) dry weight under a deed restriction;

5) verification of the perpetual protectiveness of the remedy by long term monitoring.

Based on the information provided in the application, including the five modifications outlined above, EPA has determined that implementation of the remedy and disposal actions

proposed in the application will not pose an unreasonable risk of injury to health or the environment.

Region 2 staff prepared a draft approval and published a public notice on January 10, 2005 in the Newark Star Ledger and the Home News-Tribune establishing a 30 day public comment period on the draft approval. The full application and extensive background materials were made available for public review at the EPA Edison office and at the Woodbridge Library - Fords, New Jersey, branch. No public comments were received during the 30 day public comment period.

EPA Region 2 reviewed the application to determine whether the proposed remedy would be protective of public health and the environment, is technically feasible and appropriate, is consistent and supportive of the NJDEP's plans for remediation of the site, and that safeguards are in place to ensure that long-term operation, maintenance, and monitoring commitments associated with the remedy would be undertaken.

By this letter, EPA hereby issues approval for the risk-based disposal of soils, sediments, pond "muck," and phthalic anhydride wastes contaminated with PCBs, and PCB contaminated materials located at the Hatco site, subject to the conditions specified in this letter. This approval is being issued under the authority granted to EPA by the Toxic Substances Control Act (TSCA) as codified in 40 C.F.R. § 761.61(c), (OMB Control Number 2070-0159). This approval also constitutes an order under the authority of Section 6 of TSCA, 15 U.S.C. § 2605.

1. Effective Date and Review Date

This approval shall become effective on the date that the Regional Administrator (RA) of EPA Region 2 receives written notification from Weston of its acceptance and intention to comply with the conditions of this letter. The person providing such written notification must be an officer of Weston. This offer may be withdrawn if EPA Region 2 does not receive written notification from Weston of its acceptance of, and intention to comply with, the conditions and terms of this approval within 45 days of the date of the bankruptcy court's order approving the Remediation Agreement by and among Weston, Hatco and Grace, and the Revitalization Settlement Agreement by and among the NJDEP, Weston, ACE Financial Solutions, Inc., Hatco, and Grace and its affiliates, or other such date as may be agreed to by the parties.

The EPA will review this approval no later than 5 years from its effective date. At that time, if the EPA finds that the continued implementation of the remedy granted by this approval presents an unreasonable risk to health or the environment, the EPA may modify, suspend, or revoke this approval. Alternatively, the EPA may request further information to make such a determination.

2. Description of Extent of PCB Contamination

The Hatco site, a portion of which is contaminated with PCBs above 50 mg/Kg (ppm) dry weight and is therefore the subject of this approval, is located at 1020 King Georges Post Road, Fords, Middlesex County, New Jersey. This site encompasses 80 acres and is bordered by King Georges Post Road to the North, Industrial Avenue to the south, Route 440 and Interstate I-287 to the east, and a tributary to Crows Mill Creek to the west. Approximately 15 acres of the site are developed. Chemical manufacturing, processing, storage, and waste residuals management facilities, research and quality control laboratories, and management and sales offices are located at the site. The Hatco site discussed herein also includes an area to the west of the Hatco property boundary and an area south of Industrial Avenue (known as Channel D) which are described in the draft RAWP.

PCBs were detected in 852 of the approximately 1,300 soil samples analyzed for these compounds. Detected concentrations range from 0.0033 mg/Kg (ppm) to 12,000 mg/Kg (ppm). Soils containing more than 100 mg/Kg (ppm) PCBs are generally limited to portions of the "Main Production Area", the "Muck" area, the four former unlined ponds, and two former chemical waste lagoons. A few samples collected outside of the Main Production Area were contaminated with PCBs at concentrations greater than 100 mg/Kg (ppm). Surface soil contamination between 2 mg/Kg (ppm) and 100 mg/Kg (ppm) exists over a wider portion of the developed area of the site, beyond the Main Production Area.

The Muck area is located near the western border of the site, where semi-solid materials from the ponds were periodically removed and placed on surface soils. PCB contamination in the Muck area was detected up to12,000 mg/Kg (ppm), with the highest levels of contamination present in the interval between two (2) and six (6) feet below ground surface (bgs).

The four on-site ponds received wastewater from manufacturing operations during the 1960's. In 1970, the ponds were excavated, filled and covered with soil, and a portion covered with asphalt. The maximum concentration of PCBs reported in the pond area is 8,600 mg/Kg (ppm), detected in a sample collected between 7 – 7.5 ft bgs.

In the mid 1960's, two (2) clay lined lagoons were constructed to receive chemical manufacturing wastewater effluent, recover floating organic chemical waste, and moderate flow of wastewater to the Middlesex County Utilities Authority. The two lagoons were removed from service during "Project 50" in 1991. PCB contamination exceeding 500 mg/Kg (ppm) has been detected in the lagoons.

Floating free product organic chemicals (also known as light non-aqueous phase liquid or LNAPL) are present on groundwater at two main areas: one extending from the Main Production Area southward to just north of the former lagoons; and a second within the former Muck area. The LNAPL plume at the north end of the Main Production Area is approximately 0.13 feet

thick; at the south end of the Main Production Area, LNAPL is about 1.72 feet thick; and at the former Muck Area, LNAPL is about 0.06 feet thick. The maximum PCBs concentration reported in the LNAPL was 90,000 mg/Kg (ppm). The total combined length of the LNAPL contaminated areas is approximately 1,250 feet.

The reported concentrations of PCBs in shallow groundwater monitoring wells ranged up to 24,000 ug/L (ppb), detected in the monitoring well designated MW-15S during the October 1991 sampling.

3. Remedial Action, Cap Remedy, and Long Term Monitoring

This approval applies to all portions of the Hatco site contaminated with PCBs at concentrations greater than or equal to 50 mg/Kg (ppm) (hereinafter, the "TSCA Remediation Area"), unless otherwise addressed. The TSCA Remediation Area and those areas where PCBs are present at concentrations greater than the NJDEP Cleanup Standard of 0.49 mg/Kg (ppm) (hereinafter, the "Total Remediation Area) will be subject to an Administrative Consent Order (ACO), executed between Weston and NJDEP. Those portions of the site with PCB contamination at concentrations less than 50 mg/Kg (ppm) dry weight are also subject to, and will be addressed in accordance with, NJDEP requirements.

Weston shall comply with the draft Remedial Action Workplan (RAWP), as modified to incorporate the terms of the January 2004 application, Weston's August 13 letter, and this approval, unless EPA Region 2 provides written approval of any additional modification. Notification of intent to modify the remedy must be received by EPA at least 60 calendar days prior to the proposed implementation of the modification. The provisions of this approval supercede any inconsistent provisions which may be contained in the RAWP as modified by the January 2004 application and Weston's August 13, 2004 letter.

Weston shall excavate and dispose of off-site, in accordance with 40 C.F.R. Part 761, all PCB containing material at concentrations greater than 500 mg/Kg (ppm) dry weight. Weston shall also excavate and dispose of off-site, material from the former lagoons, as described previously in this approval letter, and conduct long term monitoring to verify the perpetual effectiveness of the remedy. All remedial and monitoring work shall be performed in accordance with an engineering and monitoring plan, approved in advance, in writing, by EPA Region 2. No later than thirty (30) days after excavating and disposing of the soil, Weston shall submit to EPA Region 2 a certification, signed by a professional engineer licensed by the State of New Jersey, verifying that such work has been completed in accordance with the draft RAWP and this approval. Weston shall also maintain in perpetuity, the following records:

1) "as-built" engineering drawings which provide latitude and longitude determined using differential global positioning or an equivalent method which conforms to the EPA

locational data standard available online under the "Data Standards" link at **http://www.epa.gov/edr/**;

2) construction related documents including engineering specifications for all purchased, manufactured, or otherwise fabricated elements associated with the remedy;

3) purchase receipts and/or certifications associated with all components of the remedy;

4) lists or logsheets which record the identity and affiliation of all personnel associated with off-site management, design, or procurement, and on-site implementation of the remedy;

5) all records and information related to characterization, analysis (verified by analysis using an appropriately sensitive and selective EPA SW-846 method or validated equivalent), shipping, and disposal of materials associated with this portion of the remedy and the long term monitoring.

In addition, Weston shall consolidate the remainder of the contaminated material under an engineered cap to contain PCBs at concentrations of 2 mg/Kg (ppm) or greater (surface and subsurface soils). The capped area will include the Muck Area and the former ponds.

Crows Mill Creek (referred to as Channel D in the draft RAWP) sediments that contain PCBs above 1 mg/Kg (ppm) dry weight shall be removed and placed under the main on-site cap. Off-site contaminated soils from the areas west of the site boundary containing PCBs at concentrations over 2 mg/Kg (ppm) will be capped in place.

Areas of the site where the remedial action is for placement of a soil cap per Section 4.4.1 of the March 29, 2001 draft Remedial Action Workplan (RAWP) as modified by the January 2004 application and Weston's August 13 letter, shall be capped with a minimum of 18 to 24 inches of clean soil [i.e. containing <1 mg/Kg (ppm) PCB per 40 C.F.R. § 761.125(a)(2)(ii)], constructed, at minimum, to meet the specifications provided in 40 C.F.R. § 761.61(a)(7). Within thirty (30) days of completing the cap remedy, Weston shall submit to EPA Region 2 the following:

1) a certification, signed by a professional engineer licensed by the State of New Jersey, verifying that such work has been completed in accordance with the Draft RAWP and this approval, and

2) certification of the source, and PCB concentration - determined by analysis using an appropriately sensitive and selective EPA SW-846 method or validated equivalent - of "clean soil" utilized in the remediation.

4. Recording of Approval and Deed Notice

Within sixty (60) days of construction of the cap remedy, as described in the draft RAWP as modified by the January 2004 application and Weston's August 13 letter, and above, Weston shall prepare a Deed Notice and request the then owner(s) of the site **and off-site areas of the site** to record the Deed Notices, in accordance with 40 C.F.R. § 761.61(a)(8) and New Jersey law, with the County Clerk's Office, Middlesex County, New Jersey. The Deed Notice shall be consistent with NJDEP requirements and shall include: a description of the extent of contamination found at the site; a description of the removal action and cap remedy; the restrictions on use included in Section 7 of this approval; and a copy of this approval, appended as an attachment. Within 10 days of receipt of a stamped, filed Deed Notice, Weston shall submit a copy of same to EPA Region 2.

5. Inspection and Maintenance Obligations; Annual Report to EPA.

Weston shall provide EPA Region 2 with an update of the status of the remediation project every three (3) months following the effective date of this approval until the capping, removal, and disposal operations are complete. After the caps are completed, Weston shall visually inspect the caps at least annually, and maintain the caps as needed. Weston shall also provide for a means of communicating with the owner of the site regarding any and all activities at the site which did or may result in any disruption, damage, removal, or other loss of integrity of the cap, and Weston shall inspect the cap within five (5) working days of such notification. If necessary, the cap shall be repaired or replaced within 14 working days of the verification of damage or other loss of integrity. Within 14 working days of completion of repairs, Weston shall submit to EPA the following information:

1) notification that the cap has been breached or otherwise suffered damage or loss of integrity;

2) certification, signed by a professional engineer licensed by the State of New Jersey, that the cap has been repaired or replaced to a condition not less than that constructed as required by this approval.

The caps shall be maintained to prevent access to the contaminated material (e.g. soil and debris) under the caps and to prevent such material from being released. Weston shall also, by July 1 of each year, submit to EPA Region 2 an annual written summary report covering the previous reporting period (January through December of the previous year). The Annual Report shall provide the following information:

1) reports of visual inspections and maintenance needed to maintain the as-built integrity of the cap;

2) maintenance reports;

3) information regarding any problems maintaining any element of the remedy.

6. Sale of the Property

If Weston is advised that the then owner of the site intends to sell or lease any portion of the TSCA Remediation Area, it shall notify EPA Region 2, in writing, of the sale or lease of any portion of the TSCA Remediation Area no later than 30 days after receiving such advice prior to such action. This notification shall include the name, address and telephone number of the new owner(s). As permitted by the access agreements. Weston shall visually inspect the caps within 30 days prior to sale or lease of any such property, and shall, thereafter, provide a written report of the results of inspection, and any as yet unreported inspections and /or maintenance on the caps, to EPA Region 2 and to the buyer or lessee no later than 10 days prior to such sale or lease. In the event that the owner of the Hatco site sells or leases any portion of the TSCA Remediation Area, Weston shall continue to be bound by all the terms and conditions of this approval, unless the following occurs:

1) the new owner or any lessee requests, in writing, that EPA Region 2 reissue this approval to the new owner or lessee, transferring all responsibility to comply with the terms and conditions of this approval to the new owner or lessee;

2) EPA Region 2 reissues this approval to the new owner or any lessee, transferring all responsibility to comply with the terms and conditions of this approval to the new owner or lessee; and

3) the new owner or any lessee provides written notification to EPA Region 2 of their acceptance of and intention to comply with the terms and conditions of the reissued approval. The reissued approval may be withdrawn if EPA Region 2 does not receive written notification from the new owner or lessee of their acceptance of, and intention to comply with, the conditions and terms of the reissued approval within 45 days of the date of the reissued approval. Under such circumstances, this approval, issued to Weston, will remain in effect. In such case, Weston shall provide EPA, in writing, documentation that Weston will be afforded access to the site, as necessary, to fulfill any and all obligations included in this approval.

7. Modifications and Changes in Use

Any modification(s) in the plan, specifications, or information submitted in Weston's application or draft RAWP as modified by the January 2004 application and Weston's August 13 letter, based on which this approval has been issued, must receive prior written approval from EPA Region 2. Minor modifications to this approval may be authorized, in writing, by the Chief

of the Pesticides and Toxic Substances Branch. Weston shall inform EPA Region 2 of any change, in writing, at least 60 days prior to such change. No action may be taken to implement any such modification unless EPA Region 2 has approved of the modification, in writing. EPA Region 2 may request additional information in order to determine whether or not it approves of the modification. If such modification involves a change in the use of the TSCA Remediation Area, EPA may revoke, suspend and/or modify this approval if it finds that Weston's remedy may pose an unreasonable risk to health or to the environment due to the change in use, or if EPA Region 2 does not receive information it deems appropriate from Weston or Hatco to make a determination regarding such potential risk. Weston shall prepare and request that the owner of the site record any amendment to the Deed Notice and/or this approval, resulting from any modification(s), within 60 days of such changes(s).

8. EPA Entry and Inspection

Hatco has provided EPA assurance that EPA representatives may enter the site at reasonable times for the purposes listed below. Weston shall, also, allow any authorized EPA representatives to enter the site at reasonable times for the purposes listed below:

1) to inspect the TSCA Remediation Area of the Hatco site to assess compliance with this approval and/or the federal PCB regulations;

2) to inspect any records related to this approval and/or federal PCB regulations;

3) to take samples for the purpose of assessing compliance with this approval and/or the federal PCB regulations.

Any refusal to allow any of the above actions may result in the suspension and/or revocation of this approval.

All notifications, documents, and requests to be submitted to EPA Region 2 as specified in this approval shall, unless EPA Region 2 later indicates otherwise in writing, be sent to:

Chief
Pesticides and Toxic Substances Branch
United States Environmental Protection Agency, Region 2
2890 Woodbridge Avenue (MS-105)
Edison, New Jersey 08837-3679
Telephone (732) 321-6765 Facsimile (732) 321-6788

This approval, issued pursuant to 40 C.F.R. § 761.61(c), is subject to Weston having provided EPA Region 2 with complete and forthright disclosure of all material facts. Any misrepresentation or omission by Weston of any material fact in Weston's application or the

draft RAWP may result in EPA's revocation, suspension and/or modification of this approval, in addition to any other legal or equitable relief or remedy EPA may choose to pursue under applicable law.

Weston's acceptance of this approval constitutes Weston's agreement to comply with: 1) all conditions and terms of this approval, and 2) all applicable provisions of federal, state and local law. This approval specifies the requirements applicable under TSCA and does not make any determination regarding requirements which may be applicable under other federal, state or local law. TSCA disposal requirements do not supercede other, more stringent, applicable federal, state or local laws, including any applicable requirements under the Solid Waste Disposal Act and its amendments, including the Resource Conservation and Recovery Act. Any failure by Weston to comply with any condition or term of this approval shall constitute a violation of said approval, which has been issued pursuant to 40 C.F.R. § 761.61(c); such violation is made unlawful by Section 15(1)(C) of TSCA, 15 U.S.C. § 2614(C). Any such violation(s) may result in an action by EPA for any legal or equitable relief or remedy available under applicable law. Any such violation might also result in EPA revoking, suspending and/or modifying this approval.

Based on the information included in Weston's application, EPA Region 2 finds that the PCB disposal authorized under this approval will not present an unreasonable risk to health or the environment. Permitted levels of PCB concentration for material remaining on-site under this approval are based on a site specific risk determination pursuant to TSCA, and are not applicable to any other site. Notwithstanding, this approval may be revoked, suspended and/or modified after Weston's acceptance thereof at any time if EPA Region 2 determines that implementation of this approval may present an unreasonable risk of injury to health or the environment. Nothing in this letter is intended or is to be construed to prejudice any right or remedy concerning the operation of Hatco's facility otherwise available to EPA under Section 6 of TSCA, 15 U.S.C. § 2605 and/or 40 C.F.R. § 761.

If you have any questions about the approval, or the request for additional information regarding the chemical waste lagoons, please contact Dennis McChesney of the Pesticides and Toxic Substances Branch at 732-906-6817.

Sincerely,

for

Kathleen C. Callahan
Acting Regional Administrator

cc: Commissioner Bradley M. Campbell
New Jersey Department of Environmental Protection

Stephen E. Maybury, Bureau Chief, BEECRA
New Jersey Department of Environmental Protection

THE ELM GROUP
345 WALL STREET | RESEARCH PARK | PRINCETON NJ 08540
TEL 609.683.4848 FAX 609.683.0129
WWW.EXPLOREELM.COM

MEMORANDUM

TO: **Kevin Schick, Bureau Chief**
NJDEP, Bureau of Environmental Evaluation and Risk Assessment

FROM: **Mark D. Fisher, CHMM, LSRP**
The ELM Group, Inc.

DATE: **May 7, 2015**

RE: **Summary of NJDEP Technical Consultation Meeting of March 6, 2015**
Regarding the Hatco Corporation Remediation Project
Fords, Middlesex County, New Jersey
NJDEP PI#G000003943

A Technical Consultation pertaining to the Hatco Remediation Project was held on March 6, 2015, at the New Jersey Department of Environmental Protection (NJDEP) office in Trenton, NJ. The meeting attendees were as follows:

- Kevin Schick, NJDEP
- Nancy Hamill, NJDEP
- Mark Fisher, LSRP, The ELM Group, Inc. (ELM)
- Jason Schindler, Weston Solutions, Inc. (Weston)
- Leeron Tagger, Weston
- Lisa Saban, MS, Windward Environmental, LLC (Windward)
- Mike Johns, PhD, Windward

The purpose of the meeting was to discuss a proposed methodology regarding the derivation of a site-specific risk-based sediment remediation goal for bis(2-ethylhexyl)phthalate (BEHP) in Woodbridge Pond (a.k.a. Morris Pond) sediments for the Hatco remediation project. Prior to the meeting, Mark Fisher, the LSRP for the project, provided NJDEP with a technical memorandum that outlined a proposed approach to develop a site-specific remediation goal for BEHP in Woodbridge Pond sediments. That memorandum, dated February 2015, was prepared by Windward and Weston, and approved by the LSRP; for purposes of this discussion the February 2015 memorandum will be referred to as the "BEHP Memo".

The BEHP Memo discussed current site data, provided a review of the basis for the current NJDEP ecological screening level for BEHP in sediments and presented an approach to develop a site-specific BEHP sediment remediation goal. Based on discussions during the Technical Consultation with NJDEP, a revised approach for the Woodbridge Pond sediment BEHP remediation goal is now recommended. This memorandum presents a summary of the technical consultation meeting followed by the revised recommendations to develop the BEHP sediment remediation goal for Woodbridge Pond.

TECHNICAL CONSULTATION SUMMARY

1. NJDEP commenced the meeting with a brief introduction of NJDEP's technical consultation program that is set up for sites under LSRP oversight that have unusual environmental issues, and the Department's role to provide guidance where applicable.

2. NJDEP stated they reviewed the maps and data that Weston provided prior to the consultation.

3. NJDEP acknowledged the request for a technical consultation for the purpose of proposing a site-specific alternative remediation standard for BEHP in sediment, which will ultimately require formal approval by NJDEP.

4. NJDEP discussed ongoing projects and general environmental activity in the vicinity of the Hatco site, within the Raritan River watershed.

5. Kevin Schick (NJDEP) introduced Nancy Hamill (NJDEP) as the Department's ecological specialist and the lead for ecological guidance on the Hatco project. She will likely review all submittals pertaining to this subject and in the past had provided technical support for the NJDEP prior to the LSRP program.

6. NJDEP discussed the process for submitting the meeting minutes. NJDEP will review the draft meeting minutes once received and respond with comments, if necessary. Once comments have been addressed, the meeting minutes will be finalized and entered into New Jersey's Environmental Management Systems (NJEMS) for the public record.

7. Jason Schindler (Weston) introduced himself as the current project manager for the Hatco remediation project. Weston stated the focus of the technical consultation is on Woodbridge Pond, also known as "Morris Pond." Woodbridge Pond and neighboring properties to the west are currently owned by Woodbridge Township. The properties were acquired from Morris Properties through tax liens. Further,

Weston is under an agreement with the United States Environmental Protection Agency (EPA) to remediate PCBs greater than 1 mg/kg in off-site sediment, including Woodbridge Pond. Weston is also responsible for remediation of BEHP, which is also identified as a site-related contaminant. Historical data suggested that PCB and BEHP contamination were co-located and that the remediation of PCBs would also address the BEHP in pond sediments. Therefore, previous work did not include development of a site-specific remediation standard for BEHP in sediment. Delineation of BEHP in sediment defaulted to the ecological screening level of 0.75 mg/kg. However, the results of recent sampling in Woodbridge Pond indicated that BEHP concentrations above the screening level extend beyond the area required for PCB remediation.

8. Weston has received input from Edison Wetlands Associates (EWA) and Woodbridge Township stating their desire to minimize disruption to the ecological community and to preserve as much of the ecological value as practicable during remediation.

9. Weston has retained Windward to assist in developing a meaningful scientifically-based remediation goal that all parties can agree upon.

10. NJDEP inquired whether Woodbridge agreed to any numeric remediation goals as the property owner. Weston responded that Woodbridge Township has their own environmental consultant who is supportive of Weston's process towards deriving a site-specific remediation goal for BEHP, as long as it is in accordance with the EPA and NJDEP guidance.

11. NJDEP inquired if Weston's intent was to develop a site-specific goal for Woodbridge Pond sediments that will also apply to other areas including Channel D. Weston stated that other areas of concern (AOC) would be addressed individually and, if a site-specific BEHP sediment remediation goal or alternate remediation standard (ARS) is appropriate for other AOCs, then Weston would follow applicable guidance and procedures to derive an appropriate site-specific BEHP sediment remediation goal or ARS for that particular area. For purposes of this Technical Consultation, Weston's focus is solely on developing a site-specific BEHP sediment remediation goal the Woodbridge Pond sediment.

12. Windward discussed the content of the BEHP Memo beginning with a review of the NJ Ecological Screening Criteria for BEHP and its derivation from the NOAA Screening Quick Reference Tables (SQuiRTs) by the State of Washington. Windward stated that the NJ Ecological Screening Criterion of BEHP in sediments (0.75 mg/kg) was derived from an evaluation that is no longer appropriate. Windward discussed their review of literature on the toxicity of BEHP and found No Observed Effect

Concentration (NOEC) were identified at much higher concentrations than the current screening criteria set forth by NJDEP. Windward discussed their approach using New York State's equilibrium partitioning value methods for deriving site-specific remedial standards using Total Organic Carbon (TOC) data from Woodbridge Pond, which calculated higher cleanup numbers than the NJDEP screening criteria. Windward recommended developing a site-specific value and performing toxicity tests by spiking sediment samples with various concentrations of BEHP and analyzing the samples through two different bioassay tests with four endpoints. Windward recommended tests to be performed on spiked sediment, which would generate a dose response curve based on Windward's review of the published literature and the potential for toxicity. Then ranges of toxicity would be bracketed and from the bioassay data, a NOEC and a Lowest Observed Effect Concentration (LOEC) would be determined. The laboratory recommended to conduct the toxicity tests is Nautilus Environmental located in San Diego, California.

13. NJDEP asked why spiked sediments are being considered instead of diluted sediments. Windward responded that data developed using diluted site sediment are highly susceptible to interference due to cross-contamination from other contaminants that would likely confound the interpretation of the toxicity test results. In order to develop a reliable dose-response curve for BEHP, it is preferable to keep sediments used in the test free from other contaminants to improve the understanding of BEHP's potential impact on toxicity and growth in benthic invertebrates. Windward's recommendation is to use spiked sediments from Great Lakes Environmental Center (GLEC), which sells well-characterized sediment collected from the Great Lakes. Windward further explained, if site sediments were used instead of reconstituted or clean reference sediment for the toxicity test, the same equilibrium issues would still apply; a high concentrated chemical is still being mixed in with a low concentration sediment that contains organic carbon, which still requires equilibration, so the contamination (BEHP) molecules can migrate and disperse through the pore space to recreate site conditions as best as possible.

14. NJDEP followed by asking if there were any locations within Woodbridge Pond that had high BEHP hits without confounding high concentrations of PCBs. Windward's response was no.

15. NJDEP asked if it would be possible for Weston to adopt the Washington State screening level of 22 mg/kg and remediate the remaining BEHP hot spots outside the 1 mg/kg PCB remediation footprint. NJDEP stated that compliance averaging could be used to demonstrate compliance and noted that compliance averaging has always been allowed for ecological purposes. Further, NJDEP stated the purpose of the NJDEP screening criteria is to raise a flag for potential risk. However, NJDEP would be open to the concept of using Washington State's alternate screening level

of 22 mg/kg for a site-specific BEHP sediment remediation goal in Woodbridge Pond. NJDEP suggested this would be an effective remedial approach to address the benthic exposure pathway. Also, NJDEP agreed the current NJDEP screening criteria for BEHP is conservative and has not been updated since 2008.

16. Windward noted that the approach recommended in the BEHP Memo assumed a single point compliance approach. However, Windward and Weston will evaluate the NJDEP's recommendations to utilize compliance averaging.

17. NJDEP stated that Weston can perform testing to develop a site-specific sediment remediation goal for BEHP in Woodbridge Pond and that the NJDEP is open to this approach. However, NJDEP would also accept Washington State's alternate screening level of 22 mg/kg as a site-specific BEHP sediment remediation goal in Woodbridge Pond, along with utilizing a compliance averaging approach for these data. NJDEP acknowledged that the Washington State screening level is more current than NJDEP's for the benthic exposure pathway. Under the second approach noted above, the remedial approach for BEHP would be an additional remedial objective for Woodbridge Pond that would be in addition to the existing EPA-directed sediment remediation criteria for total PCBs of 1 mg/kg; the remedial approach for BEHP would also incorporate compliance averaging to achieve the Washington State BEHP standard of 22 mg/kg in the remaining pond sediments.

18. NJDEP stated this discussion has been focused on the protection of the benthic community, but the risk that BEHP poses to wildlife (e.g. fish, piscivorous birds, mammals, etc.) must also be addressed. NJDEP stated there have been reports of heron and fish species documented by NJDEP Division of Fish and Wildlife at Woodbridge Pond. Thus, if Weston were to use the equilibrium partitioning method to develop a site-specific BEHP sediment remediation goal that is higher than the current screening level, NJDEP is not confident that the upper trophic level would also be protected.

19. NJDEP stated the Hatco remediation project is one of three sites in New Jersey that is currently undergoing the development of a site-specific remediation goal for a phthalate in sediment, and the Hatco site in particular has the highest phthalate concentrations of the three sites. NJDEP identified that risk assessments for phthalates have been completed at the Mannington Mills site in Salem County, NJ and the Horseshoe Road Superfund Site in Sayreville, NJ. NJDEP has reviewed data on bioaccumulation of BEHP in fish tissue at sites where BEHP concentrations in sediment are lower than those found in Woodbridge Pond. NJDEP stated that the investigators at the other sites, when conducting their risk assessment for phthalates and developing site-specific sediment remediation goals, set objectives in their risk assessments to address the protection of upper trophic wildlife, and that

this is something Weston needs to consider. NJDEP stated the BEHP Memo does not address the bioaccumulation potential of BEHP in upper trophic levels. However, NJDEP believes that BEHP does bioaccumulate in fish tissue and therefore this issue should be addressed for Woodbridge Pond. NJDEP also stated that the BEHP Memo did not address the ecotoxicity profiles for BEHP and the risk assessment/remediation approach should address the potential for BEHP to be an endocrine disruptor in fish and should evaluate biomarkers of exposure.

20. NJDEP expects Weston will submit an ecological risk assessment with the Remedial Investigation Report for the Hatco site and that the risk assessment should describe the ecotoxicity profile for BEHP and the potential for being an endocrine disruptor.

21. Weston noted that the remediation of Woodbridge Pond will likely require removal of the existing fish population. Fish removal was previously recommended for this site by NJ Division of Fish and Wildlife during Weston's 2013 pre-application meeting.

22. NJDEP, Weston and Windward agreed that if the fish are removed from the pond during remediation then (a) the BEHP exposure pathway to the upper trophic levels would be eliminated and (b) the site-specific BEHP sediment remediation goal for the protection of the benthic environment is the only risk exposure pathway that needs to be developed.

23. NJDEP indicated that if Weston elects to proceed with sediment testing to develop a site-specific BEHP sediment remediation goal, then NJDEP would prefer reference sediments from a closer source, such as the pond in Round Valley, NJ. If Weston and Windward prefer to use GLEC sediment for potential toxicity testing for the reason that it is well-characterized, NJDEP will leave it to Weston's discretion and that Weston should provide the data to determine what the best source of sediment to use for the spike test; however, NJDEP has no guidance in place that prohibits the use of the GLEC sediment.

RECOMMENDED APPROACH

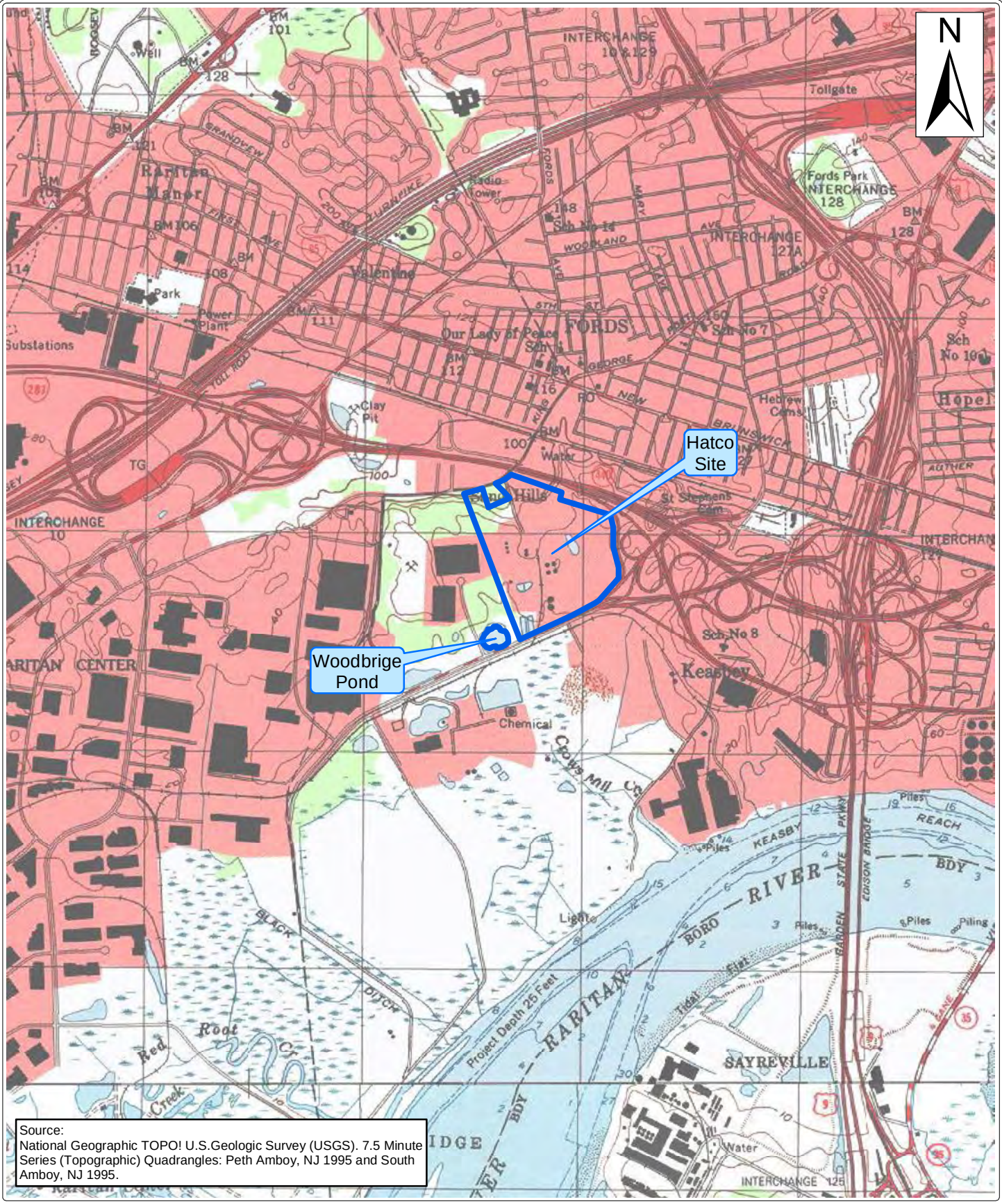
Based upon the items discussed at the technical consultation meeting, Windward and Weston are currently evaluating using the Washington State screening standard of 22 mg/kg as the site-specific BEHP sediment remediation goal for Woodbridge Pond, including utilizing compliance averaging as a component of remediation strategy.

To address the Woodbridge Pond AOC, Windward will develop a memo for NJDEP documenting use of current ecological risk guidance, and will outline the potential pathways via a discussion of a conceptual site model (CSM) for the pond. Windward will

also develop an ecotoxicological profile for BEHP and discuss bioaccumulation potential as well as possible endocrine disruptor and other effects.

FIGURES

DRAFT



LEGEND:

2,000 1,000 0 2,000

Scale in Feet

TITLE:

WOODBRIDGE POND
USGS QUAD MAP
(Perth Amboy Quadrangle)

PROJECT: Hatco Remediation

CLIENT NAME: Hatco Corporation

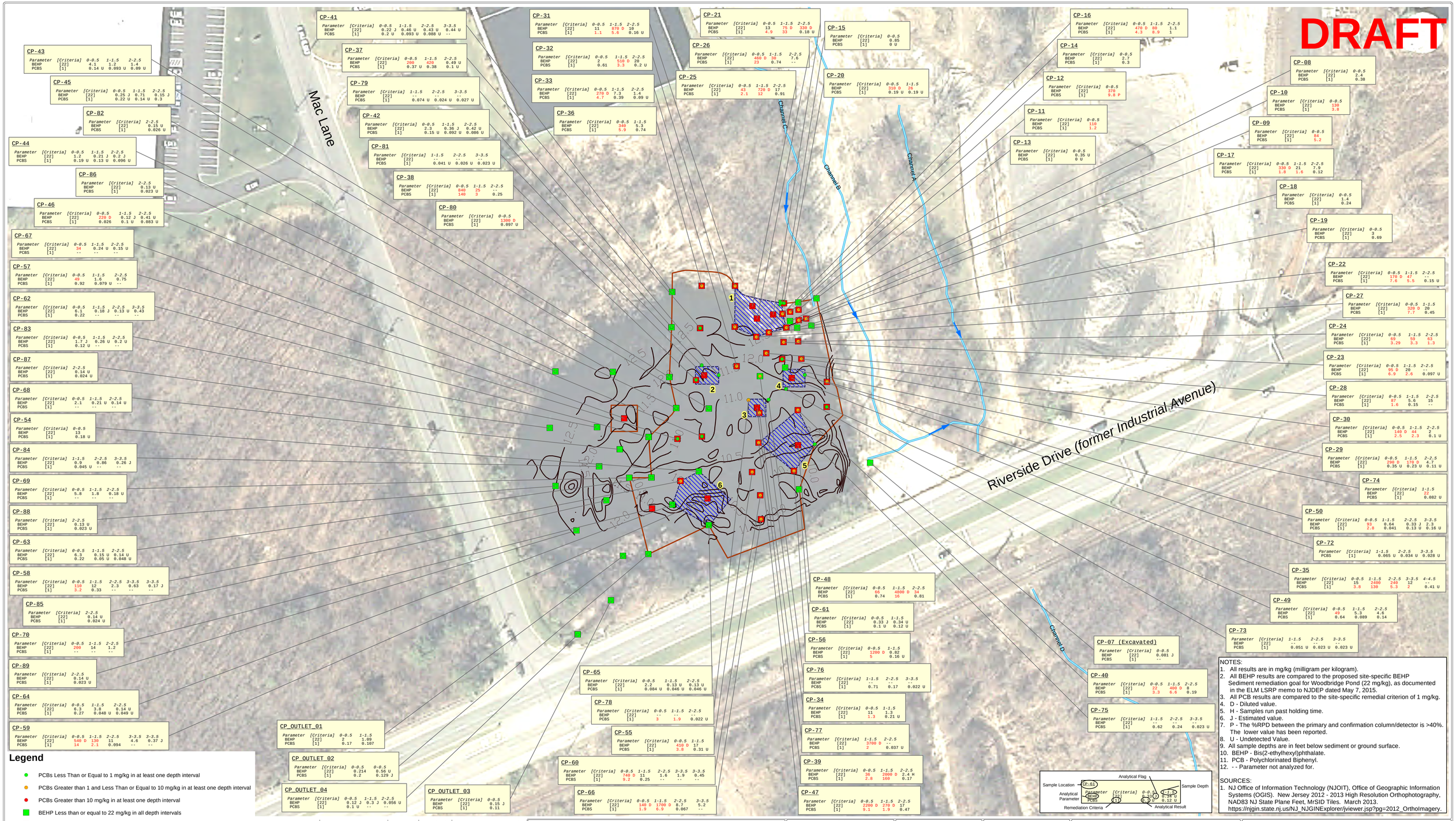
WESTON SOLUTIONS

DATE: October 2015

FIGURE #: 1

P:\HatcoGIS\MXD\2015_10_Morris_Pond\17168_Morris_Pond_Site_Loc.mxd

DRAFT



CP-41
Parameter	[Criteria]	0-0.5	1-1.5	2-2.5	3-3.5
BEHP	[22]		0.22 J	0.46 U	0.43 U	0.44 U
PCBS	[1]		0.2 U	0.093 U	0.088 U	--

CP-43
Parameter	[Criteria]	0-0.5	1-1.5	2-2.5
BEHP	[22]		4.1	1.2	1.4
PCBS	[1]		0.14 U	0.093 U	0.09 U

CP-37
Parameter	[Criteria]	0-0.5	1-1.5	2-2.5
BEHP	[22]		280	420	0.49 U
PCBS	[1]		0.37 U	0.38	0.1 U

CP-45
Parameter	[Criteria]	0-0.5	1-1.5	2-2.5
BEHP	[22]		0.25 J	0.71	0.15 J
PCBS	[1]		0.22 U	0.14 U	0.3

CP-79
Parameter	[Criteria]	1-1.5	2-2.5	3-3.5
BEHP	[22]	--	--	--
PCBS	[1]	0.074 U	0.024 U	0.027 U

CP-82
Parameter	[Criteria]	2-2.5
BEHP	[22]	0.15 U
PCBS	[1]	0.026 U

CP-42
Parameter	[Criteria]	0-0.5	1-1.5	2-2.5
BEHP	[22]		2.3	0.36 J	0.42 U
PCBS	[1]		0.15 U	0.092 U	0.086 U

CP-44
Parameter	[Criteria]	0-0.5	1-1.5	2-2.5
BEHP	[22]		1.2	0.21 J	0.2 J
PCBS	[1]		0.19 U	0.13 U	0.096 U

CP-81
Parameter	[Criteria]	1-1.5	2-2.5	3-3.5
BEHP	[22]	--	--	--
PCBS	[1]	0.041 U	0.026 U	0.023 U

CP-86
Parameter	[Criteria]	2-2.5
BEHP	[22]	0.13 U
PCBS	[1]	0.023 U

CP-38
Parameter	[Criteria]	0-0.5	1-1.5	2-2.5
BEHP	[22]		840	25	--
PCBS	[1]		140	3	0.25

CP-46
Parameter	[Criteria]	0-0.5	1-1.5	2-2.5
BEHP	[22]		220 D	0.12 J	0.41 U
PCBS	[1]		0.026	0.1 U	0.083 U

CP-80
Parameter	[Criteria]	0-0.5
BEHP	[22]	1300 D
PCBS	[1]	0.097 U

CP-67
Parameter	[Criteria]	0-0.5	1-1.5	2-2.5
BEHP	[22]	34	0.24 U	0.15 U
PCBS	[1]	--	--	--

CP-57
Parameter	[Criteria]	0-0.5	1-1.5	2-2.5
BEHP	[22]	49	1.6	0.75
PCBS	[1]	0.92	0.079 U	--

CP-62
Parameter	[Criteria]	0-0.5	1-1.5	2-2.5	3-3.5
BEHP	[22]	6.1	0.18 J	0.13 U	0.43
PCBS	[1]	0.22	--	--	--

CP-83
Parameter	[Criteria]	0-0.5	1-1.5	2-2.5
BEHP	[22]	1.7 J	0.26 U	0.2 U
PCBS	[1]	0.12 U	--	--

CP-87
Parameter	[Criteria]	2-2.5
BEHP	[22]	0.14 U
PCBS	[1]	0.024 U

CP-68
Parameter	[Criteria]	0-0.5	1-1.5	2-2.5
BEHP	[22]	2.1	0.21 U	0.14 U
PCBS	[1]	--	--	--

CP-54
Parameter	[Criteria]	0-0.5
BEHP	[22]	13
PCBS	[1]	0.18 U

CP-84
Parameter	[Criteria]	1-1.5	2-2.5	3-3.5
BEHP	[22]	0.9	0.86	0.26 J
PCBS	[1]	0.045 U	--	--

CP-69
Parameter	[Criteria]	0-0.5	1-1.5	2-2.5
BEHP	[22]	5.8	1.8	0.18 U
PCBS	[1]	--	--	--

CP-88
Parameter	[Criteria]	2-2.5
BEHP	[22]	0.13 U
PCBS	[1]	0.023 U

CP-63
Parameter	[Criteria]	0-0.5	1-1.5	2-2.5
BEHP	[22]	6.3	0.15 U	0.14 U
PCBS	[1]	0.22	0.05 U	0.048 U

CP-58
Parameter	[Criteria]	0-0.5	1-1.5	2-2.5	3-3.5	3-3.5
BEHP	[22]	110	12	2.3	0.63	0.17 J
PCBS	[1]	3.2	0.33	--	--	--

CP-85
Parameter	[Criteria]	2-2.5
BEHP	[22]	0.14 U
PCBS	[1]	0.024 U

CP-70
Parameter	[Criteria]	0-0.5	1-1.5	2-2.5
BEHP	[22]	200	14	1.2
PCBS	[1]	--	--	--

CP-89
Parameter	[Criteria]	2-2.5
BEHP	[22]	0.14 U
PCBS	[1]	0.023 U

CP-64
Parameter	[Criteria]	0-0.5	1-1.5	2-2.5
BEHP	[22]	6.3	3.8	0.14 U
PCBS	[1]	0.27	0.048 U	0.049 U

CP-59
Parameter	[Criteria]	0-0.5	1-1.5	2-2.5	3-3.5	3-3.5
BEHP	[22]	540 D	130	11	4.6	0.37 J
PCBS	[1]	14	2.1	0.094	--	--

CP-31
Parameter	[Criteria]	0-0.5	1-1.5	2-2.5
BEHP	[22]	11	870 D	10
PCBS	[1]	1.1	5.6	0.16 U

CP-32
Parameter	[Criteria]	0-0.5	1-1.5	2-2.5
BEHP	[22]	2	510 D	20
PCBS	[1]	0.61	3.3	0.2 U

CP-33
Parameter	[Criteria]	0-0.5	1-1.5	2-2.5
BEHP	[22]	270 D	7.3	1.4
PCBS	[1]	4.7	0.39	0.09 U

CP-36
Parameter	[Criteria]	0-0.5	1-1.5
BEHP	[22]	340	5.3
PCBS	[1]	5.9	0.74

CP-21
Parameter	[Criteria]	0-0.5	1-1.5	2-2.5
BEHP	[22]	13	75 D	330 D
PCBS	[1]	4.9	33	0.18 U

CP-26
Parameter	[Criteria]	0-0.5	1-1.5	2-2.5
BEHP	[22]	460 D	30	7.6
PCBS	[1]	23	0.74	--

CP-25
Parameter	[Criteria]	0-0.5	1-1.5	2-2.5
BEHP	[22]	43	720 D	17
PCBS	[1]	2.1	12	0.91

CP-15
Parameter	[Criteria]	0-0.5
BEHP	[22]	0.85
PCBS	[1]	0 U

CP-20
Parameter	[Criteria]	0-0.5	1-1.5
BEHP	[22]	310 D	26
PCBS	[1]	0.19 U	0.19 U

CP-16
Parameter	[Criteria]	0-0.5	1-1.5	2-2.5
BEHP	[22]	470 D	88	1.1
PCBS	[1]	4.3	0.9	1

CP-14
Parameter	[Criteria]	0-0.5
BEHP	[22]	2.7
PCBS	[1]	0.3

CP-12
Parameter	[Criteria]	0-0.5
BEHP	[22]	370
PCBS	[1]	9.8 P

CP-11
Parameter	[Criteria]	0-0.5
BEHP	[22]	110
PCBS	[1]	1.2

CP-13
Parameter	[Criteria]	0-0.5
BEHP	[22]	0.35 U
PCBS	[1]	0 U

CP-08
Parameter	[Criteria]	0-0.5
BEHP	[22]	2.4
PCBS	[1]	0.38

CP-10
Parameter	[Criteria]	0-0.5
BEHP	[22]	130
PCBS	[1]	3.8

CP-09
Parameter	[Criteria]	0-0.5
BEHP	[22]	84
PCBS	[1]	5.2

CP-17
Parameter	[Criteria]	0-0.5	1-1.5	2-2.5
BEHP	[22]	330 D	21	7.9
PCBS	[1]	1.8	1.6	0.12

CP-18
Parameter	[Criteria]	0-0.5
BEHP	[22]	1.4
PCBS	[1]	0.24

CP-19
Parameter	[Criteria]	0-0.5
BEHP	[22]	3
PCBS	[1]	0.69

CP-22
Parameter	[Criteria]	0-0.5	1-1.5	2-2.5
BEHP	[22]	170 D	47	--
PCBS	[1]	7.6	5.5	0.15 U

CP-27
Parameter	[Criteria]	0-0.5	1-1.5
BEHP	[22]	320 D	20
PCBS	[1]	7.7	0.45

CP-24
Parameter	[Criteria]	0-0.5	1-1.5	2-2.5
BEHP	[22]	69	59	63
PCBS	[1]	3.29	3.3	1.3

CP-23
Parameter	[Criteria]	0-0.5	1-1.5	2-2.5
BEHP	[22]	95 D	20	--
PCBS	[1]	6.9	2.6	0.097 U

CP-28
Parameter	[Criteria]	0-0.5	1-1.5	2-2.5
BEHP	[22]	87	5.6	15
PCBS	[1]	1.6	0.15	--

CP-30
Parameter	[Criteria]	0-0.5	1-1.5	2-2.5
BEHP	[22]	140 D	44	2
PCBS	[1]	2.5	2.3	0.1 U

CP-29
Parameter	[Criteria]	0-0.5	1-1.5	2-2.5
BEHP	[22]	290 D	170 D	4.7
PCBS	[1]	0.35 U	0.23 U	0.11 U

CP-74
Parameter	[Criteria]	1-1.5
BEHP	[22]	22
PCBS	[1]	0.082 U

CP-50
Parameter	[Criteria]	0-0.5	1-1.5	2-2.5	3-3.5
BEHP	[22]	93	0.64	0.33 J	2.3
PCBS	[1]	2.8	0.041	0.13 U	0.16 U

CP-72
Parameter	[Criteria]	1-1.5	2-2.5	3-3.5
PCBS	[1]	0.065 U	0.034 U	0.028 U

CP-35
Parameter	[Criteria]	0-0.5	1-1.5	2-2.5	3-3.5	4-4.5
BEHP	[22]	15	2400	240	12	--
PCBS	[1]	3.8	130	5.3	2	0.41 U

CP-49
Parameter	[Criteria]	0-0.5	1-1.5	2-2.5
BEHP	[22]	49	5.3	4.6
PCBS	[1]	0.64	0.089	0.14

CP-73
Parameter	[Criteria]	1-1.5	2-2.5	3-3.5
BEHP	[22]	--	--	--
PCBS	[1]	0.051 U	0.023 U	0.023 U

CP-48
Parameter	[Criteria]	0-0.5	1-1.5	2-2.5
BEHP	[22]	66	4800 D	34
PCBS	[1]	0.74	10	0.81

CP-61
Parameter	[Criteria]	0-0.5	1-1.5
BEHP	[22]	0.33 J	0.34 U
PCBS	[1]	0.1 U	0.12 U

CP-56
Parameter	[Criteria]	0-0.5	1-1.5
BEHP	[22]	1200 D	0.82
PCBS	[1]	5	0.16 U

CP-76
Parameter	[Criteria]	1-1.5	2-2.5	3-3.5
BEHP	[22]	--	--	--
PCBS	[1]	0.71	0.17	0.022 U

CP-34
Parameter	[Criteria]	0-0.5	1-1.5
BEHP	[22]	11	1.3
PCBS	[1]	1.3	0.21 U

CP-77
Parameter	[Criteria]	1-1.5	2-2.5
BEHP	[22]	3700 D	--
PCBS	[1]	2	0.037 U

CP-39
Parameter	[Criteria]	0-0.5	1-1.5	2-2.5
BEHP	[22]	36	2000 D	2.4 H
PCBS	[1]	2.8	160	0.17

CP-47
Parameter	[Criteria]	0-0.5	1-1.5	2-2.5
BEHP	[22]	2200 D	270 D	17
PCBS	[1]	9.1	1.9	0.47

CP-07 (Excavated)
Parameter	[Criteria]	0-0.5
BEHP	[22]	0.081 J
PCBS	[1]	--

CP-40
Parameter	[Criteria]	0-0.5	1-1.5	2-2.5
BEHP	[22]	22	400 D	8
PCBS	[1]	3.3	0.6	0.19

CP-75
Parameter	[Criteria]	1-1.5	2-2.5	3-3.5
BEHP	[22]	--	--	--
PCBS	[1]	0.62	0.24	0.023 U

CP_OUTLET_01
Parameter	[Criteria]	0-0.5	1-1.5
BEHP	[22]	2	1.09
PCBS	[1]	0.17	0.107

CP_OUTLET_02
Parameter	[Criteria]	0-0.5	0-0.5
BEHP	[22]	0.214	0.56 U
PCBS	[1]	0.2	0.129 J

CP_OUTLET_04
Parameter	[Criteria]	0-0.5	1-1.5	2-2.5
BEHP	[22]	0.12 J	0.3 J	0.056 U
PCBS	[1]	0.1 U	--	--

CP_OUTLET_03
Parameter	[Criteria]	0-0.5
BEHP	[22]	0.15 J
PCBS	[1]	0.11

CP-60
Parameter	[Criteria]	0-0.5	1-1.5	2-2.5	3-3.5	3-3.5
BEHP	[22]	11	1.6	1.9	0.45	
PCBS	[1]	9.2	0.25	--	--	--

CP-66
Parameter	[Criteria]	0-0.5	1-1.5	2-2.5	3-3.5
BEHP	[22]	140 D	1700 D	8.7	5.2
PCBS	[1]	1.9	6.9	0.067	--

CP-65
Parameter	[Criteria]	0-0.5	1-1.5	2-2.5
BEHP	[22]	2.2	0.13 U	0.13 U
PCBS	[1]	0.084 U	0.046 U	0.046 U

CP-78
Parameter	[Criteria]	0-0.5	1-1.5	2-2.5
BEHP	[22]	--	--	--
PCBS	[1]	3	1.9	0.022 U

CP-55
Parameter	[Criteria]	0-0.5	1-1.5
BEHP	[22]	410 D	17
PCBS	[1]	3.8	0.31 U

CP-27
Parameter	[Criteria]	0-0.5	1-1.5
BEHP	[22]	320 D	20
PCBS	[1]	7.7	0.45

NOTES:
1. All results are in mg/kg (milligram per kilogram).
2. All BEHP results are compared to the proposed site-specific BEHP Sediment remediation goal for Woodbridge Pond (22 mg/kg), as documented in the ELM LSRP memo to NJDEP dated May 7, 2015.
3. All PCB results are compared to the site-specific remedial criterion of 1 mg/kg.
4. D - Diluted value.
5. H - Samples run past holding time.
6. J - Estimated value.
7. P - The %RPD between the primary and confirmation column/detector is >40%.
8. U - Undetected value.
9. All sample depths are in feet below sediment or ground surface.
10. BEHP - Bis(2-ethylhexyl)phthalate.
11. PCB - Polychlorinated Biphenyl.
12. - - Parameter not analyzed for.

SOURCES:
1. NJ Office of Information Technology (NJOIT), Office of Geographic Information Systems (OGIS). New Jersey 2012 - 2013 High Resolution Orthophotography, NAD83 NJ State Plane Feet, MrSID Tiles. March 2013. https://njgin.state.nj.us/NJ_NJGINExplorer/jviewer.jsp?pg=2012_OrthoImagery.

Legend

- PCBs Less Than or Equal to 1 mg/kg in at least one depth interval
- PCBs Greater than 1 and Less Than or Equal to 10 mg/kg in at least one depth interval
- PCBs Greater than 10 mg/kg in at least one depth interval
- BEHP Less than or equal to 22 mg/kg in all depth intervals
- BEHP Greater than 22 mg/kg in at least one depth interval
- Current Extent of Channels B and C
- 4 Estimated Sediment Removal Area
- Estimated Sediment Removal Area
- Proposed Sand Cap Area (PCB's 1-10 mg/kg and/or BEHP Over 22 mg/kg)
- 2 Analytical Result Exceeding Criterion
- —12.5— Bathymetry with elevation
- BEHP bis(2-ethylhexyl) phthalate
- Surface water flow direction

Name	Rationale	Depth (ft)	Area (sqft)	In-Place Volume (cuyd)
Removal Area 1	PCB > 10 mg/kg	2	2,180	161
Removal Area 2	PCB > 10 mg/kg	1	530	20
Removal Area 3	PCB > 10 mg/kg	2	400	30
Removal Area 4	PCB > 10 mg/kg	2	501	37
Removal Area 5	PCB > 10 mg/kg	2	2,242	166
Removal Area 6	PCB > 10 mg/kg	2	2,317	172
Sand Cap	PCB 1-10 mg/kg and/or BEHP > 22 mg/kg	0.5	53,428	989

50 25 0 50
Graphic Scale In Feet

Weston Solutions, Inc.
205 Campus Drive Edison, New Jersey 08837-3939
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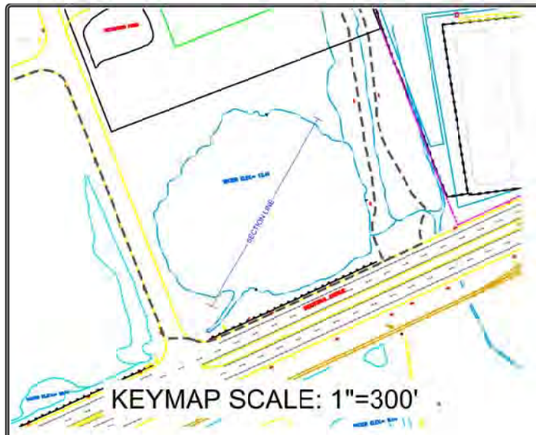
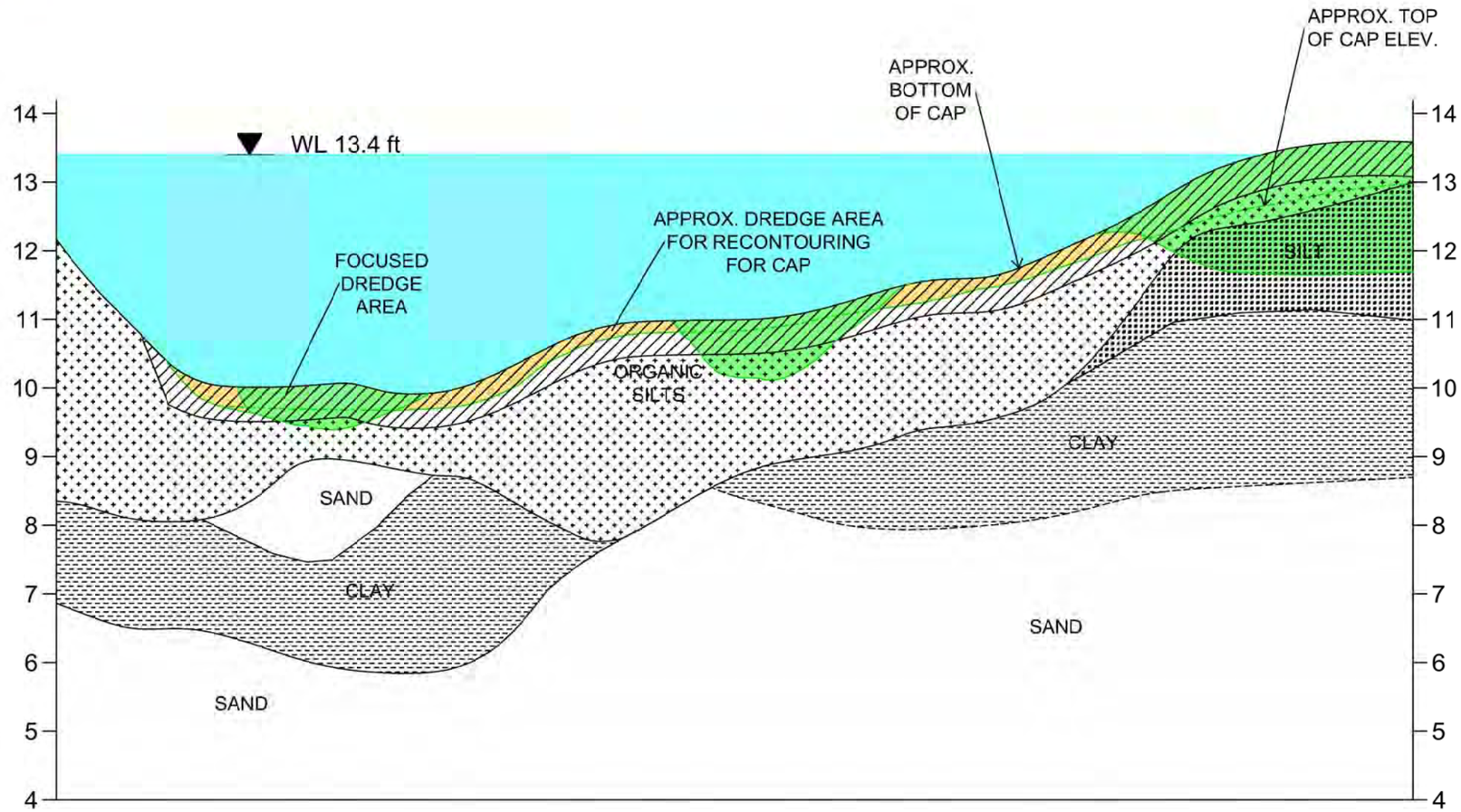
http://www.westonsolutions.com

N W E S

REPORT DATE: November 2015
PROJECT MANAGER: J. Schindler
DRAWING: 17137_Morris_Pond_Bathymetry.mxd
PATH: P:\Hatco\GIS\MXD\2015_10_Morris_Pond\
CHECKED BY: B. Simons
REVISION No.: 0
CONTRACT No.:
DELIVERY ORDER NO.:
WORK ORDER No.: 13067.001.003.8036
DRAWN/MODIFIED BY: S. Poultney
DATE CREATED: 6/11/2015
CLIENT NAME: Hatco Corporation
PROJECT NAME: Woodbridge Pond
DRAWING TITLE: Woodbridge Pond BEHP and PCB Results and Proposed Extent of Sediment Removal and Capping
FIGURE: 2
SCALE: 1 in = 50 ft
DATE: November 2015





LEGEND:

- ORGANIC SILT
- SILT
- CLAY
- SAND
- SAND CAP
- FOCUSED DREDGE AREA FOR DISPOSAL
- DREDGE AREA TO RECONTOUR FOR CAPPING

HORIZONTAL SCALE
15 0 15 30
1 inch = 30 ft.

VERTICAL SCALE
1 0 1 2
1 inch = 2 ft.

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Weston Solutions, Inc.
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PROJECT MANAGER: J. Schindler
CHECKED BY: B. Simmons
CONTRACT NO.
DELIVERY ORDER NO.
DRAWN/MODIFIED BY: S. Potter
DATE CREATED: 10-22-2015
REPORT DATE: October 2015
DRAWING PATH: see footer
REVISION NO.: 0
WORK ORDER NO.: 13067.001.003.8036
SEAL:
N.J. PROFESSIONAL ENGINEER NO. 00000
CLIENT NAME: Hatco Corporation
PROJECT NAME: Hatco Remediation
DRAWING TITLE: WOODBRIDGE POND CROSS SECTION A-A'
DATE: 10-29-2015
SCALE: As shown
FIGURE: 3